

ABSTRACT

Organic light emitting devices are described wherein the emissive layer comprises a host material containing an emissive molecule, which molecule is adapted to luminesce when a voltage is applied across the heterostructure, and the emissive molecule is selected from the group of phosphorescent organometallic complexes, including cyclometallated platinum, iridium and osmium complexes. The organic light emitting devices optionally contain an exciton blocking layer. Furthermore, improved electroluminescent efficiency in organic light emitting devices is obtained with an emitter layer comprising organometallic complexes of transition metals of formula L_2MX , wherein L and X are distinct bidentate ligands. Compounds of this formula can be synthesized more facily than in previous approaches and synthetic options allow insertion of fluorescent molecules into a phosphorescent complex, ligands to fine tune the color of emission, and ligands to trap carriers.